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THE

JOURNAL

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

CONTAINING
THE PROCEEDINGS

JUNE 1910

SPRING MEETING, ATLANTIC CITY, MAY 31 TO JUNE 3
MEETING IN ENGLAND, JULY 26 TO 29

ADVERTISING SUPPLEMENT

SECTION 1

Machine Shop Equipment

Machine Shop Equipment	Section 1
Power Plant Equipment	Section 2
Electrical Equipment	Section 3
Hoisting and Conveying Machinery. Power Transmission	Section 4
Engineering Miscellany	Section 5
Directory of Mechanical Equipment	Section 6

THE WARNER & SWASEY COMPANY

CLEVELAND, OHIO, U. S. A.

BRANCH OFFICES: NEW YORK DETROIT CHICAGO

THE WORKS AND MAIN OFFICES, CLEVELAND

Upwards of a quarter of a century devoted to perfecting and manufacturing Machine Tools of the highest order.

See also advertisement page 8—Hollow Hexagon Turret Lathes and Turret Screw Machines

The P. & W. Adjustable Blade Reamer

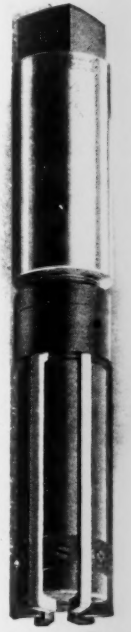
The Strongest and Longest-lived Reamer on the Market

Can do more work and heavier work with greater accuracy and better finish than a solid reamer.

Eccentrically relieved and can be reset to exact size when worn without regrinding.

Easily and quickly taken down to replace broken blades, and readily reset to exact micrometer dimensions.

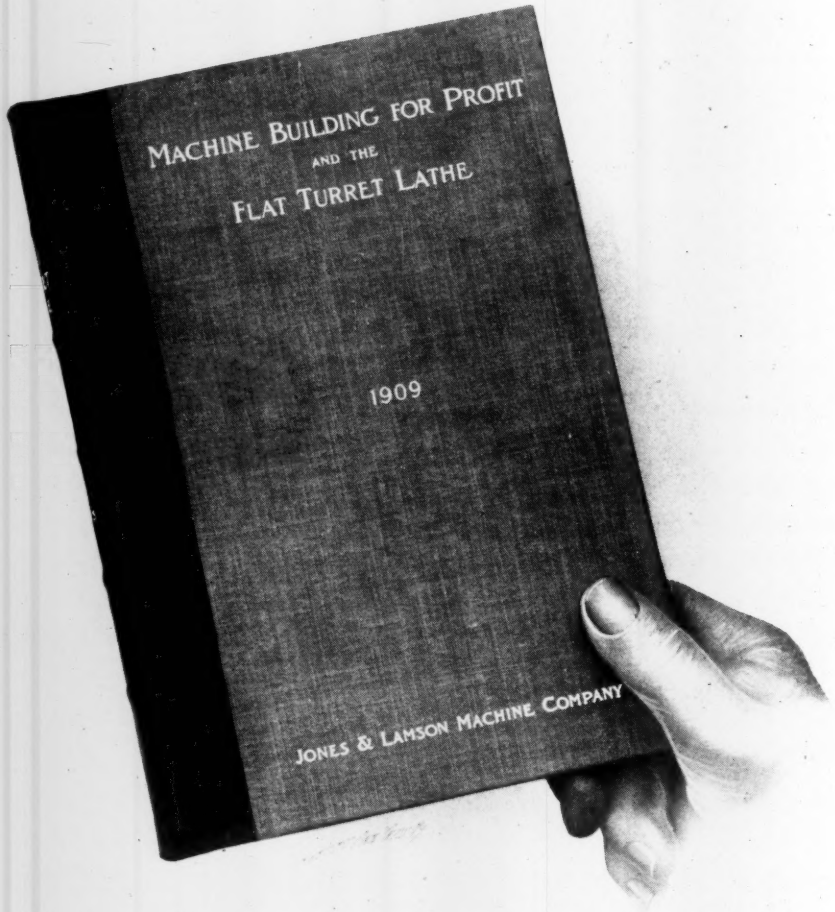
The P. & W. Adjustable Blade Reamer is exact. Can be KEPT Exact and will LAST a Life-time.



Write for Catalog and Price List "Small Tools"

PRATT & WHITNEY CO., HARTFORD, CONN.

This Book is for the Company



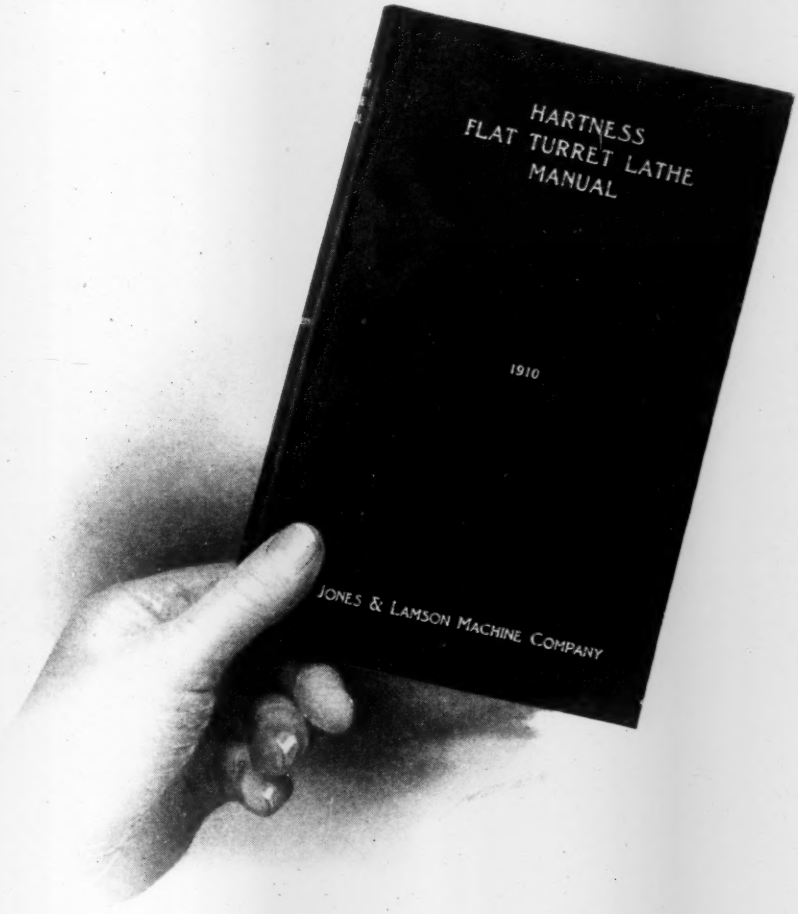
"Machine Building for Profit" is sent free on request to the Owner, Proprietor, Manager, Superintendent or Foreman of a Machine shop in which Lathes are used for turning out chucking work under 14″ diameter and bar work under 3″ in diameter and less than 36″ long.

Springfield, Vt.
U. S. A.

Jones & Lamson

Germany, Holland, Belgium, Switzerland, Austria-Hungary,
M. Koyemann, Charlottenstrasse 112, Düsseldorf, Germany.

This Book is for the Operator



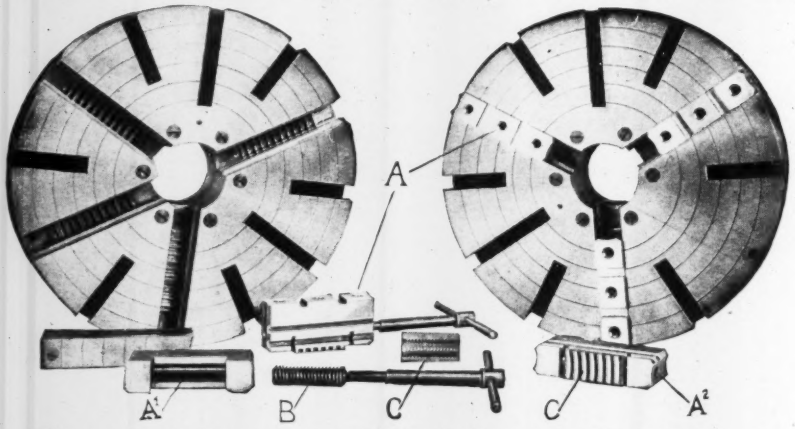
The Flat Turret Lathe Manual is sent to the Company or any Officer of it, but is more especially intended for the use of the man who runs the machine.

It is furnished free of charge to any Operator who is running one of our Flat Turret Lathes.

Machine Company Queen Victoria St. London, E. C.

France and Spain, Ph. Bonvillain and E. Ronceray, 9 and 11 Rue des Envierges, Paris. Italy, Adler & Eisenschitz, Milan

Improved Adjustable Jaw-Bases



This new cut, here first published, shows our Patent Convertible 2 and 3 Jaw Heavy Pattern Turret Lathe Chucks and the new Patent Independently Adjustable Jaw-Bases, which may be inserted interchangeably in Chucks of this type, when desired, in place of the regular forms of Jaws

FULL PARTICULARS AND PRICES UPON INQUIRY

THE D. E. WHITON MACHINE CO., New London, Conn., U. S. A.

ON THE ART OF CUTTING METALS

By FRED W. TAYLOR, Sc.D.

The most complete and thorough treatise yet published on this subject with chapters on:

Action of Tool and its Wear in Cutting Metals
How Modern High-Speed Tools Wear
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Chatter of Tools
How Long Should a Tool Run Before Regrinding
Effect of Feed and Depth of Cut on Cutting Speed
Tool Steel and its Treatment
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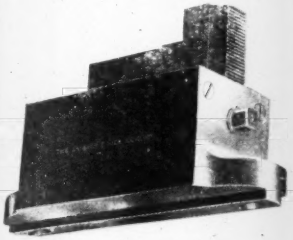
Pages 350. Folders 24

The American Society of Mechanical Engineers

29 WEST 39th STREET, NEW YORK

"The Skinner" Reversible Face-Plate Jaws



It's up to you to supply your men with tools that will save you money. The Skinner Face Plate Jaws are adaptable to a large variety of work. Easy to fit to any machine.

Substitute them on large Lathes and Boring Mills and save the differences in price of large and expensive Chucks—sure money saver. Made heavy and powerful. Order a set for immediate delivery.

The Skinner Chuck Co. New Britain, Conn., and 94 Reade St., New York

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INCORPORATED

Machine Tools, Electric Cranes and Engineering Specialties

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This Trade C Mark Means

"REGISTERED"

an absolute guarantee of first QUALITY

38 years on the market makes our Machine Screw Taps the pioneers in their class. They have no superiors, and are fully guaranteed

Taps and Dies furnished to A. S. M. E. Standard at regular prices

J. M. Carpenter Tap & Die Co., Pawtucket, R. I.

Shop Management

Papers read before

The American Society of Mechanical Engineers from 1890 to 1908

The Society has a limited number of copies of papers on Shop Management which have been presented before it. Orders will be filled until the supply is exhausted.

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25	1012	Is Anything the Matter with Piece Work? F. Richards	.20
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25	1011	Modifying System of Management, H. L. Gantt	.10
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8	256	Problem in Profit Sharing, Wm. Kent	.30
25	1040	Rational Basis for Wages, H. Emerson	.10
24	1003	Shop Management, F. W. Taylor	.90
7	209	Shop Order System of Accounts, H. Metcalfe	.40
9	287	Short Way to Keep Time and Cost, H. L. Binsse	.10
25	1010	Slide Rules for the Machine Shop, C. G. Barth	.20
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			$4.70

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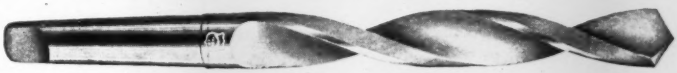

With Standard Taper Shanks are the most satisfactory and reliable. They run true, fit regular sockets and save the expense of special sockets or chucks.

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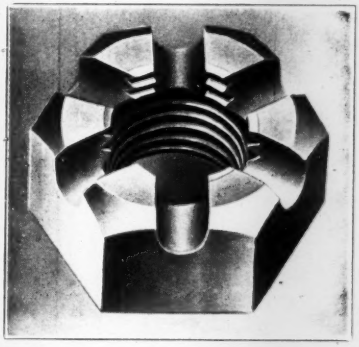

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WE BUILD A COMPLETE LINE OF NEW AND UP-TO-DATE

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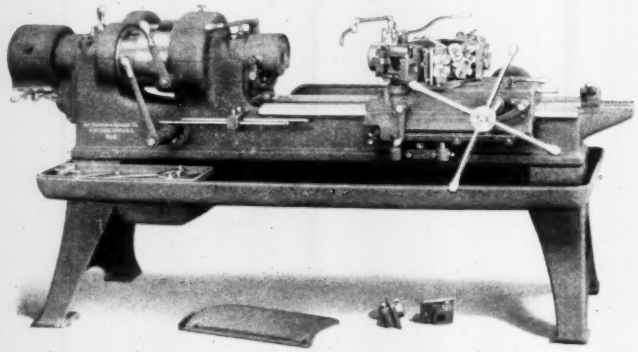
THE NATIONAL MACHINERY CO. TIFFIN, OHIO, U.S.A.

WARNER & SWASEY TURRET LATHES

—modern machines for modern requirements



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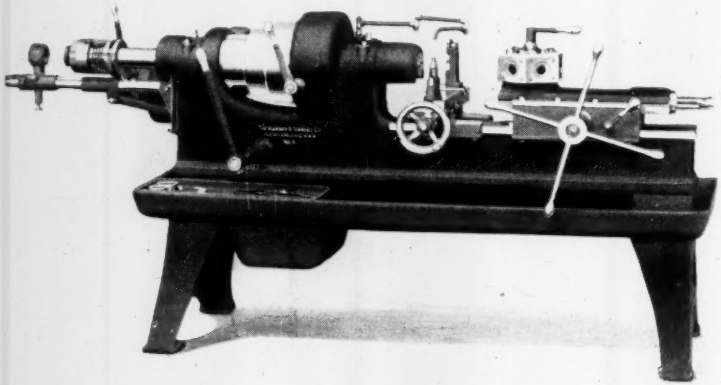
Four Sizes—No. 1 1½ x 18, No. 2 2¼ x 24, No. 3 3¼ x 36, No. 4 4¼ x 36



No. 6 —2½ Bar Capacity—17" swing

TURRET SCREW MACHINES

Six sizes—⅜ to 3⅜" capacity, 10 to 20" swing

See also advertisement page 1—The Works of The Warner & Swasey Co.

THE WARNER & SWASEY COMPANY

CLEVELAND, OHIO, U. S. A.

BRANCH OFFICES: NEW YORK DETROIT CHICAGO

ADVERTISING SUPPLEMENT

SECTION 2

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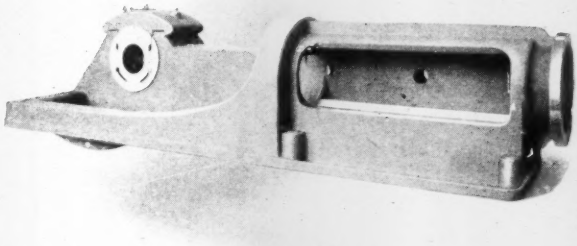
"Corliss" Stands for a Principle

to us, and on it we build engines that are great improvements over anything Mr. Corliss had in mind. This is the natural outcome of a determination to "do something better."



For ten years we have cast our frames in one piece as shown, and the other big builders are gradually falling in line. This frame is machined at one setting—is rigid and reduces friction—is heavy to withstand shocks—has full foundation contact for stability—in fact the best frame, completely efficient.

You can't get anything that is "too good" in these days of fighting to reduce operating costs. Get Wisconsin Engines in the power plant.

WISCONSIN ENGINE COMPANY

CORLISS, WIS., U. S A.

IMMUNE TO the evils of EXPANSION

ROTHCHILD ROTARY GATE VALVE

HAS

PROVED

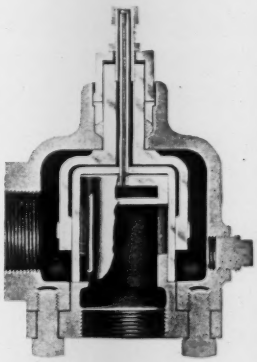
ITS

SUPERIOR COMPARATIVE MERITS

FOR

BOILER BLOW-OFF, ETC.

BECAUSE IT



meets requirements perfectly without repairs or complaint

SPECIFIED AND USED BY LEADING ENGINEERS MODERN POWER PLANTS

JOHN SIMMONS CO., 110 Centre St., **New York, N. Y.**

WITHOUT close comparison, a Nelson Valve looks like most of the good valves on the market.

Inspected, side by side with the best valves you know, you find in the Nelson, a heavier valve, better workmanship and more attractive appearance.

These three are good points, but *not* the advantage you seek.

For the main reason why Nelson Valves are demanded by the engineer who knows, is *not* simply good finish, much metal, fine appearance.

But he values Nelson Valves because he has found that back of these qualities and *the reason for them*, is the Nelson folks' determination to make valves that will stand the rigid service that they know, and you know, are required in your power service lines, tight under all conditions.

This policy of careful manufacture for sever duty is conscientiously followed from start to finish, throughout the entire plant, and covers every size and type of valve.

Catalogue on request of any engineer who is sufficiently interested in improving his plant to write a postal for it

Nelson Valve Company

Philadelphia

TO CONSULTING, OPERATING ENGINEERS AND ENGINE BUYERS

We are now prepared to furnish Corliss engines of both simple and compound types, having Heavy Duty Tangye or Tubular Girder Beds, equipped with our new *"Franklin" patent horizontal gravity latch releasing gear*, enabling us to secure a rotative speed of 200 revolutions per minute.

When higher speeds are required we furnish Inertia shaft governor in combination with our well known double ported Corliss Valves. Designed for either belt or direct connection.

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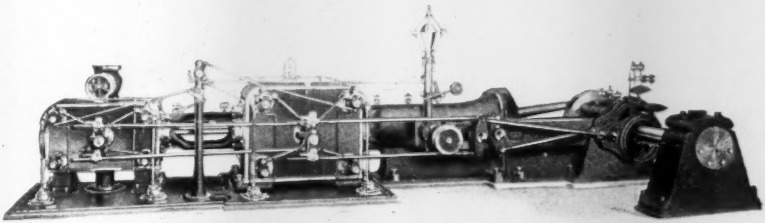
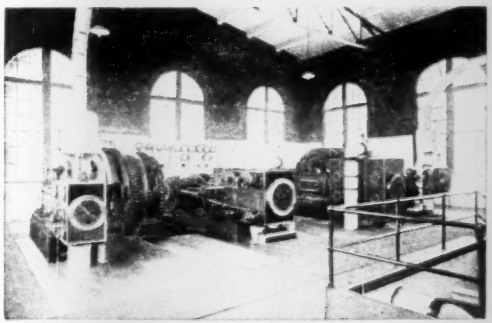


HEWES & PHILLIPS IRON WORKS NEWARK N. J.



The Yost Typewriter Engine Room, Bridgeport, Conn.

The Feature

which distinguishes our High Speed Corliss engines from other four-valve engines is the patented Non-detaching Valve Gear, by which the valves are given the same movement that the drop cut-off gear produces by picking up and dropping them. It is this feature more than any other which made the slow speed Corliss a successful and durable machine and is still more valuable for higher speeds.

Ball Engine Company

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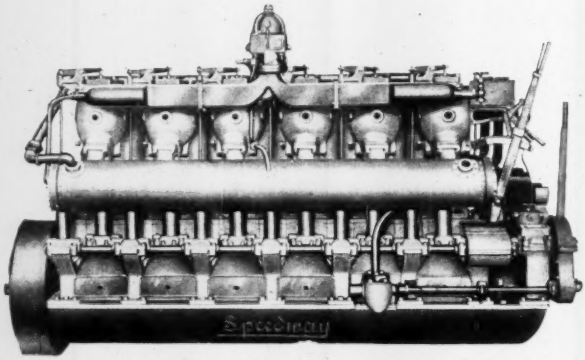
SPEEDWAY GASOLINE ENGINES



The Speedway Engine the Most Modern Design and the Highest Development in the Gas Engine Art. These are not Cheap Engines unless the BEST is considered an Economy. Good Value in Exchange for Good Price

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CONSOLIDATED
MORRIS HEIGHTS, NEW YORK, N. Y.

Also Yacht and Launch Builders and Manufacturers of Seabury Water Tube Boilers and Marine Steam Engines *Send 10 cent stamp for Catalogue.*

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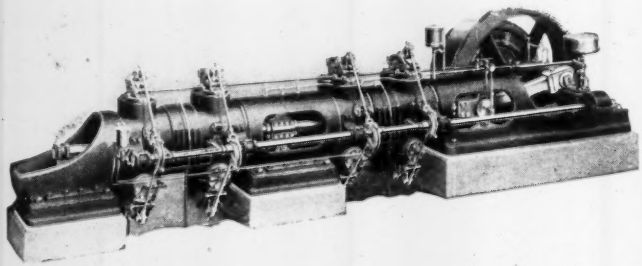
FOUR CYCLE - DOUBLE ACTING

For Natural and Producer Gas

75 to 10,000 B. H. P.

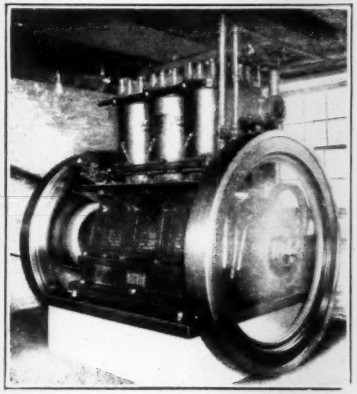


Catalogues, information and estimates cheerfully furnished

BUCKEYE ENGINE COMPANY

SALEM, OHIO

Nash Gas Engines



have held the leadership in Vertical Gas Engine Design for 26 years.

They possess unequalled

Simplicity, Economy and Reliability

Nash Engines are the embodiment of the latest and best ideas of Gas Engine design and construction. 3 to 300 h.p.

National Meter Company

84 Chambers St., New York

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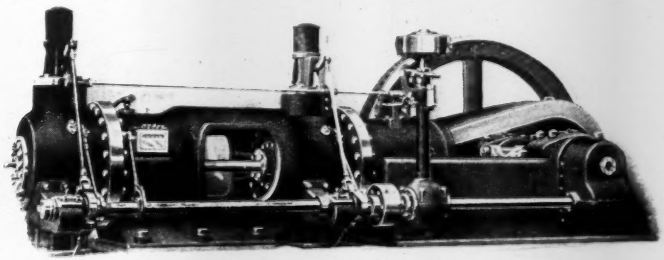
Makers of the world famous Water Meters Crown, Empire, Nash, Gem, Premier



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POINTS OF MERIT

Heavy overload capacity. Close regulation. Positive lubrication. Positive circulation of cooling water. No joints between combustion chamber and water jackets. All valve cages removable.

The most reliable and economical motive power obtainable
Ask your consulting engineer to investigate

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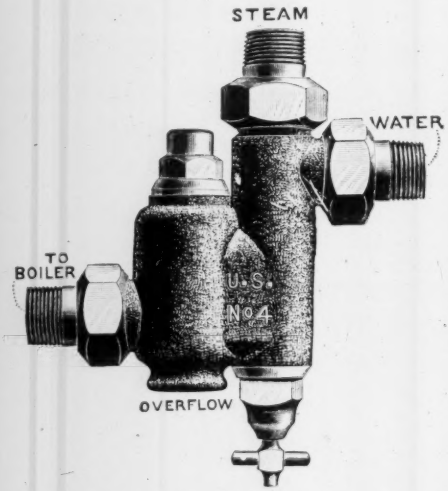
U. S. Automatic Injectors have an International Reputation for Superiority



They have just as firm a foothold abroad as at home. Only genuine merit has placed the "U. S. Automatic" in this position. The more particular you are about securing reliable boiler feeding—the better it pleases us—for the **U. S. is a reliable boiler feeder.**

Send for our Engineers' "Red Book"—it slips right into the vest pocket, small in size, but large in information.

AMERICAN INJECTOR COMPANY

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Superheated Steam

Papers read before

The American Society of Mechanical Engineers from 1890 to 1908

The Society has a limited number of copies of papers on Superheated Steam which have been presented before it. Orders will be filled until the supply is exhausted.

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SET COMPLETE		$1.50	$3.00

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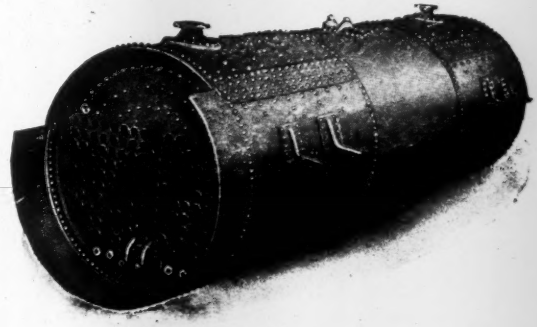
Robb-Mumford Boiler Co.

Successors to

EDWARD KENDALL & SONS
CHARLES RIVER IRON WORKS

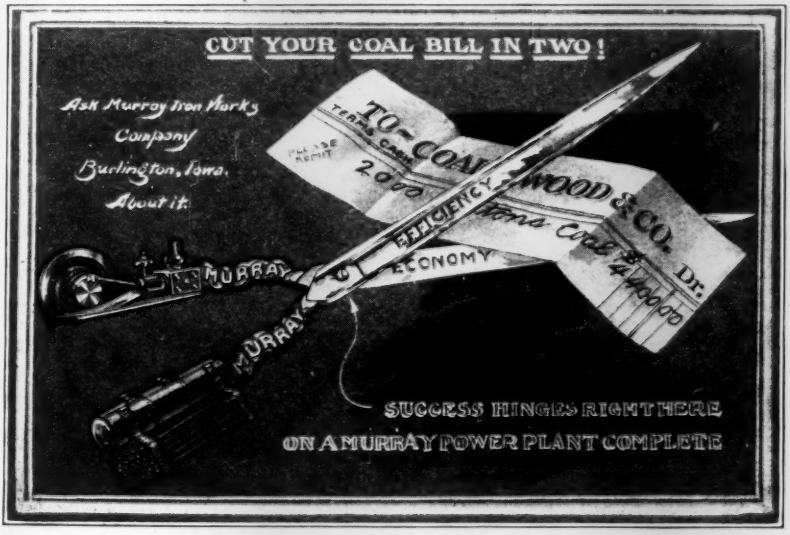


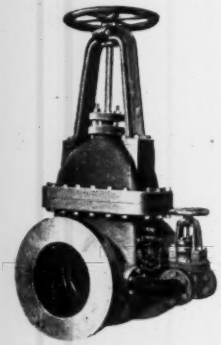
Manufacturers of

Return Tubular, Water Tube, internally fired and other types of Boilers; Smoke Stacks, Tanks, Etc.

Works:—SOUTH FRAMINGHAM, MASS.

Sales Office: 131 State St., Boston





GATE VALVES FOR THE HIGHER WORKING STEAM PRESSURES ON THE

"LENTICULAR"

PRINCIPLE ARE THE BEST FOR THE PURPOSE

Catalogue explains merits of Construction and Operation

THE KENNEDY VALVE MANUFACTURING CO.

Elmira, N. Y., and 57 Beekman St., New York City

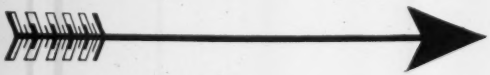
Jenkins Bros. Valves

are the original and only genuine "Jenkins" valves. They are the easiest to keep tight. They are strong, well designed, carefully constructed, and nicely finished. Don't take an imitation "Jenkins"—insist on having the kind which bear the trade mark as shown in the cut.

We shall be glad to send catalog on request.

Jenkins Bros.

New York Boston Philadelphia Chicago



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"Graphite as a Lubricant" for 1910

This newest edition is just off the press with all the latest information on graphite lubrication. Big type, easy to read and worth reading.

Write for free copy 199-C.

JOSEPH DIXON CRUCIBLE CO.

JERSEY CITY, N. J.

STEADY LIGHTS

Apartment houses, hotels and office buildings using incandescent electric lights supplied by current from a generator driven by an

American Ball Angle Compound Engine

have no trouble from unsteady lights. There is no interruption of service due to breaking of supply wires on account of storms or low candle power of lights due to excessive "line drop." American Ball Units keep the voltage constant and the lights burning to their full candle power. They are provided with sensitive automatic governors which take care of the widest variation in load. Where alternators are run in parallel there is no danger of the regulation being spoiled by cross currents as the Angle Compound Engine gives a practically uniform turning effort.

AMERICAN ENGINE COMPANY

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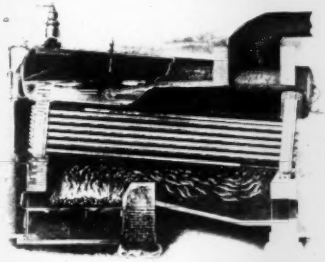

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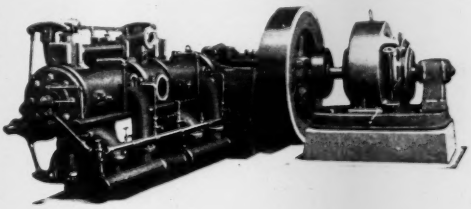

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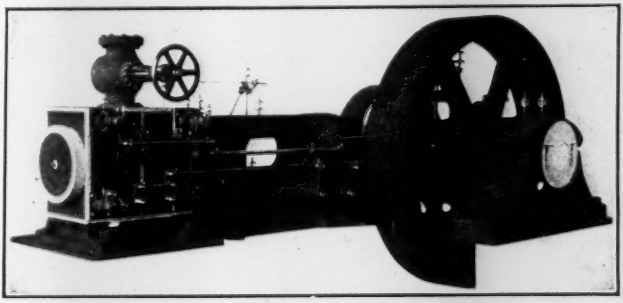

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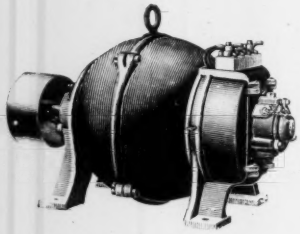

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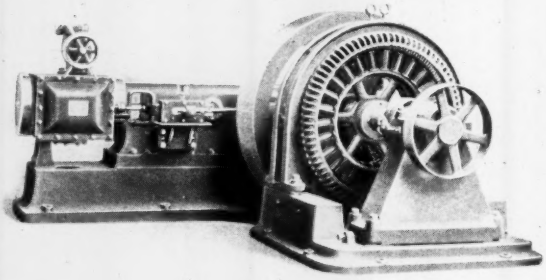

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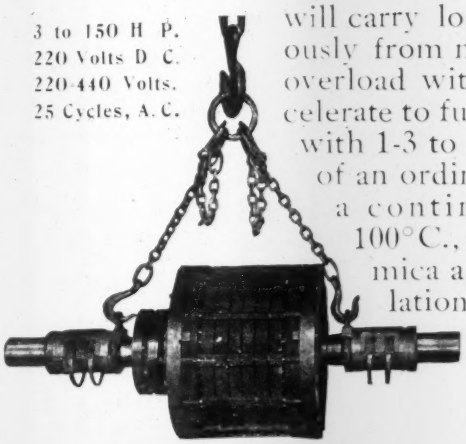

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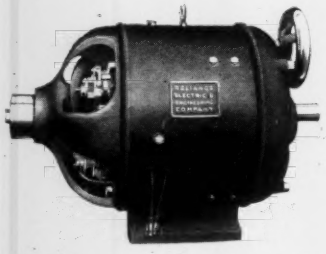

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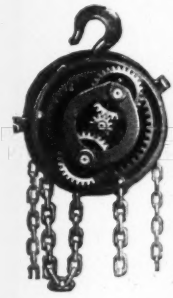
Distribution of Stress



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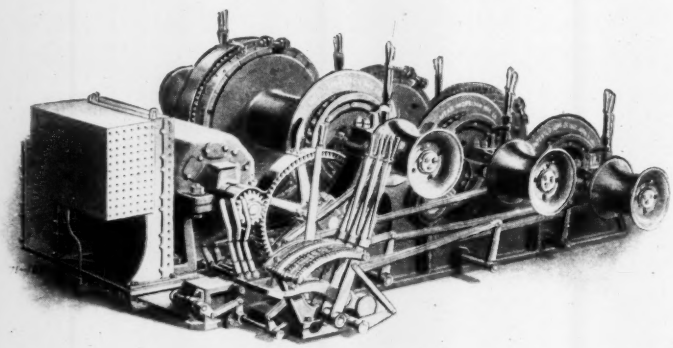

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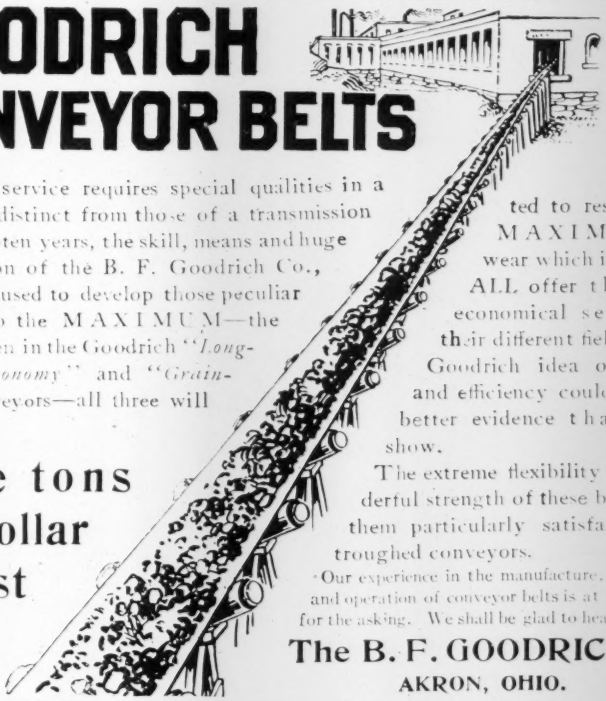

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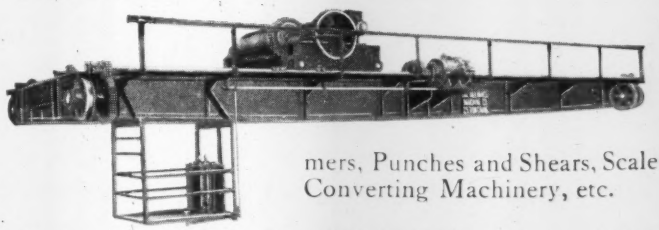

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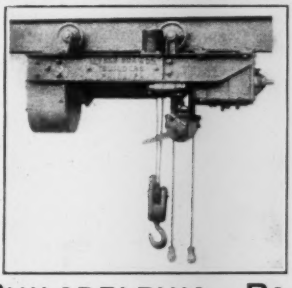

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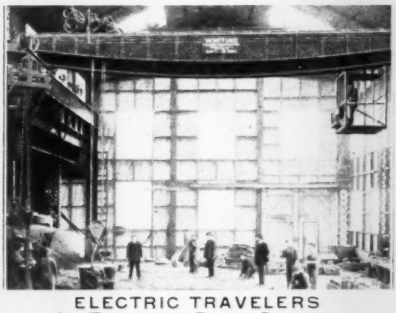

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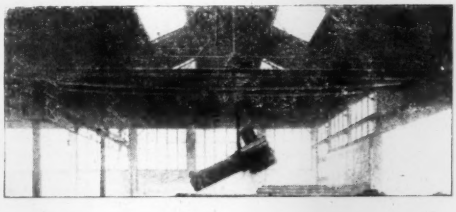

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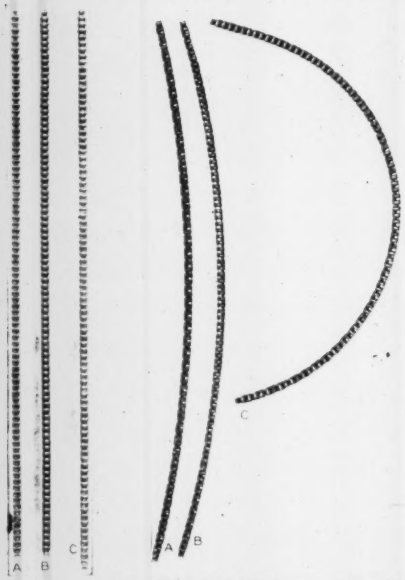

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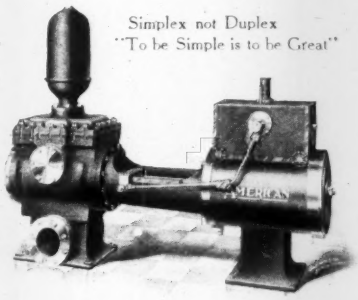

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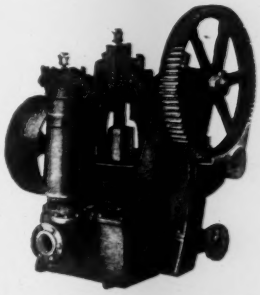

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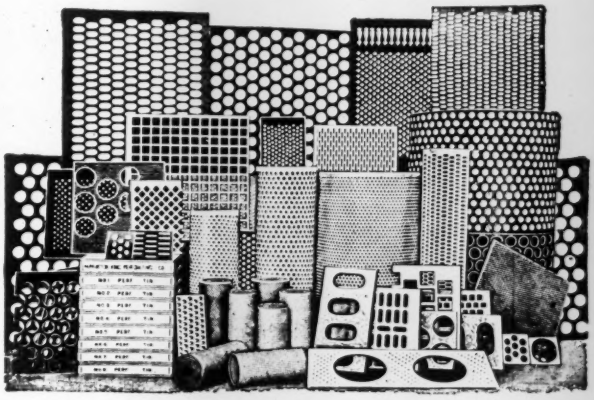

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